INDEX

Acid phosphate, effect of, on seed germination, 337–340
Acidity of forest floor soil, 65
Adsorption, negative of electrolytes by kaolin, 232
Alfalfa, studies on the removal of nutrients from subsoil by, 261–266
Alumina, heat of reaction of gels of, 243–250
Aluminum, available, in soil, 236–238
Aluminum chloride, effect of, on kaolin, 431–432
Alway, Frederick J., and Harmer, Paul M., (paper) Minnesota Glacial Soil Studies: II. The Forest Floor of the Late Wisconsin Drift, 57–71
Ames, J. W., and Gerdel, R. W., (paper) Potassium Content of Plants as an Indicator of Available Supply in Soil, 199–223; (paper) The Seedling Plant Method of Determining Soil Nutrient Deficiency, 455–466
Ammonification in alkali soils, 280–284
Ammonium chloride—
  effect of, on seed germination, 337–340
Ammonium nitrate—
  effect of, on seed germination, 337–340
Ammonium phosphate—
  effect of, on seed germination, 337–340
Ammonium sulfate—
  effect of, on potassium availability, 208–210
  effect of, on seed germination, 337–340
  nitrification of, 140–160
Archibald, R. G., (paper) Black Arm Disease of Cotton with Special Reference to the Existence of the Causal Organism *B. Malvacearum* Within the Seed, 5–11; (paper) Sulfuric Acid Treatment of Cotton Seed, 1–3
Atmospheric Conditions, Effect of Local influence in Modifying the General, (paper) Alfred Smith, 363–376
Bacteria—
  daily changes in numbers of, in American soils, 253–259
  effect of leaching on number of, in soil, 275
  effect of sodium carbonate on number of, in soil, 276
  effect of sodium chloride on number of, in soil, 275
  effect of sodium sulfate on, in soil, 275–278
  longevity of legume, in the soil, 359–360
  number of, in alkali soils, 275–280
  studies on some obligate thermophilic, from the soil, 47–56
  The Possible Rôle of Iron Depositing, in the Formation of Hard-Pan, (paper) C. S. Mudge, 467–473
Barium, effect of, ion on kaolin, 231
Base exchange—
  capacity of soils for, 127–135
  method for determining, 128
Baver, L. D., (paper) Factors Affecting the Hydrogen-Ion Concentration of Soils, 399–414
Boron, The Influence of, on the Growth of the Soybean Plant, (paper) Gilbeart H. Collings, 83–105
Bouyoucos, George John, (paper) Differences in the Heat of Reaction between Artificial and Soil Gels of Silica, Alumina, and Iron, with Hydroxides, 243–250; (paper) The Hydrometer as a New and Rapid Method for Determining the Colloidal Content of Soils, 319–331; (paper) The Hydrometer as a New Method for the Mechanical Analysis of Soils, 343–353; (paper) The Phenomena of Contraction and Expansion of Soils When Wetted with Water, 119–126
Brewer, P. H., and Carr, R. H., (paper) Fertility of a Soil as Related to the Forms of Its Iron and Manganese, 165–173
Calcined phosphate—
  effect of, on seed germination, 337–340
Calcium—
  amount of, in soil extract dialysate, 22, 28–30
  effect of addition of, on Al and Fe in soils, 129
  effect of, on clay, 231–234

Calcium—
influence of, on organic matter in soil, 107–116
outgo from soil, 175–187
saturation of soils with, and cation replacement, 127–135
Calcium carbonate—
effect of, on seed germination, 337–340
Calcium cyanamide—
effect of, on seed germination, 337–340
Calcium oxide—
effect of, on seed germination, 337–340
Carbon—
organic, in forest floor soil, 67
ratio of, to nitrogen, 67
Carbon Dioxide Evolution of Soil and Crop Growth, (paper) Henrik Lundegårdh, 417–453
Carr, R. H., see Brewer, P. H., 165–173
Cataphoretic measurements on kaolin particles, 233–234
Cation replacement in soils, 127–135
Climate—
effect of soil on, 363–376
influence of, on soil respiration, 427–430
Collings, Gilbeart H., (paper) The Influence of Boron on the Growth of the Soybean Plant, 83–105
Colloidal behavior of soils and soil fertility, 127–135
Collodion sacks, the use of, in obtaining clear soil extracts, 13–32
Colloids—
determination of, in soils, 319–331
heat of reaction of soil, 244
heat of wetting of, 244
study of soil, 487–491
swelling of soil, 119
volume change due to swelling of soil, 119, 123
Cotton, Black Arm Disease of, With Special Reference to the Existence of the Causal Organism *B. Malvacearum* Within the Seed, (paper) R. G. Archibald, 5–11
Cotton Seed, Sulfuric Acid Treatment of, (paper) R. G. Archibald, 1–3
Crawford, Esther M., See MacIntire, W. H., Shaw, W. M., and, 107–117
Culture medium for yeast, 35
Davison, Wilburt C., See Waksman, S. A., 81–82
Dialysis—
as a method of obtaining soil water extracts, 14–15
preparation of sacks for, 15–16
Dilatometer, use of, in measuring volume contraction of soils, 119–121
Duff, definition of, 57
Feirer, William A., (paper) Studies on Some Obligate Thermophilic Bacteria from Soil, 47–56
Fertilizers—
effect of, on soil reaction, 407–409
Effect of, on the Germination of Seeds, (paper) Jacob L. Maxton, 335–341
influence of, on soil respiration, 427–431
various kinds of nitrogenous, and nitrification, 140–160
Fish, dried ground, for nitrification experiments, 140–160
Fisher, R. A., See Thornton, H. G., and, 253–259
Flocculation, studies on, 489
Forest floor soil, analyses of, 65–68
Gerdel, R. W., See Ames, J. W., and, 199–223; 455–466
Greaves, J. E., (paper) The Microflora and the Productivity of Leached and Non-Leached Alkali Soil, 271–302
Gypsum, effect of, on alkali soil, 491
Hardpan—
nature of, 225–226
the rôle of iron depositing bacteria in the formation of, 467–473
Harmer, Paul M., See Alway, Frederic J., and, 57–71; (paper) Minnesota Glacial Soil Studies: III. Density of the Surface Foot in Forest and Prairie on the Late Wisconsin Drift, 73–80
Hawker, Herman W., (paper) A Study of the Soils of Hidalgo County, Texas and the Stages of Their Soil Lime Accumulation, 475–485
Heat of reaction, differences in, between artificial and soil gels, 243–250
Heat of wetting of soils, 244, 392–393, 395–397
Henrici, A. T., See Starkey, R. L., and, 33–45
Humus—
definition of, 57
Hydrogen-ion concentration—
and base exchange reactions, 127–135

Hydrogen-ion concentration—
colorimetric determination of the, 24–25
determination of the, on dialysate of soil extract, 18–21
effect of fertilizer treatment on, of soils, 407–409
Factors Affecting the, of Soils, (paper) L. D. Baver, 399–414
influence of, on nitrification, 145–148
periodic changes of the, in soils, 403–407
Hydrometer—
the use of the, in determining colloidal content of soils, 319–331
the use of the, in mechanical analysis of soils, 343–353
Iron—
ferrous, determination of, in soil, 169
heat of reaction of, gels, 243–250
relation of, to soil fertility, 165–173
Jenny, H., See Wiegner, G., and, 415
Joffe, J. S., and McLean, H. C., (paper) Colloidal Behavior of Soils and Soil Fertility: III. Cation Replacement and Saturation of Soil with Ca, 127–135
Kaolin, Effect of Some Electrolytes on, and the Probable Relation to the Soil, (paper) John R. Skeen, 225–242
Leaching—
loss of nitrogen by, 139, 152–160
Leafmold, definition of, 57
Legume bacteria—
effect of dust storms on distribution of, 360–361
longevity of, in soil, 359–360
Lime—
Accumulation, A Study of the Soils of Hidalgo County, Texas, and the Stages of Their Soil, (paper) 475–485
effect of, on soils, 128–130
influence of degree of fineness of, on organic matter in soil, 111–112
influence of, on degree of suspension in soils, 384–388
influence of various kinds of, on organic matter in soil, 108–116
method of determining, requirement, 130–135
Lundegårdh, Henrik, (paper) Carbon Dioxide Evolution of Soil and Crop Growth, 417–453
Lysimeter, study of, drainage, 491
McCool, M. M., Weidemann, A. G., and Schlubatis, G., (paper) Further Studies on Michigan Soil Profiles with Special Reference to Dispersed Materials, 391–398
MacIntire, W. H., (paper) Outgo of Calcium, Magnesium, Nitrates and Sulfates from High-Calcic and High-Magnesic Limes Incorporated in Two Soil Zones, 175–197; MacIntire, W. H., Shaw, W. M., and Crawford, Esther, N., (paper) Organic Matter Changes in Two Soil Zones as Influenced in Form, Fineness, and Amount of Calcic and Magnesic Materials, 107–117
McLean, H. C., See Joffe, J. S., and, 127–135
Magnesium, outgo of, from soils, 175–187
Magnesium lime, influence of, on organic matter in soil, 108–116
Manganese—
method of determining, in soils, 169
relation of, to soil fertility, 165–173
Manure, action of, on soil respiration, 430–431
Maxton, Jacob L., (paper) Effect of Fertilizers on the Germination of Seeds, 335–341
Mechanical analysis of soils, method for the, 343–353
Microflora, the, of leached and non-leached alkali soil, 271–302
Millar, C. E., (paper) Studies of the Removal of Nutrients from Subsoil by Alfalfa, 261–269
Moisture—
distribution of, in soils, 303–317
effect of, on *R. leguminosarum* in soil, 355–362
Moisture equivalent in forest floor soil, 67–68
Mudge, C. S., (paper) The Possible Rôle of Iron Depositing Bacteria in the Formation of Hardpan, 467–473
Mulching, effect of, on moisture distribution, 316
Neubauer method of determining availability of plant food, 199, 463–465
Nitrates—
determination of soil, by dialysis, 18–21, 26–28
leaching rate of, 140–141
outgo of, from soils limed with Ca, Mg limes, 187–190
speed of diffusion, 19–20
Nitrification—
as a measure of the availability of nitrogen for plant growth, 139–152

Nitrification—
effect of phosphates on, 145
effect of temperature on, 138, 151
in alkali soil, leached and unleached, 284–287
influence of salts on, 138–139
influence of source of nitrogen on, 139
moisture relations and, 138, 141
of sewage sludge, 145, 151
of various nitrogenous fertilizers, 140–160
soil reaction and, 138
temperature effect on, 148–150
Nitrogen—
A Study of the Factors Influencing the Efficiency of Different Forms of, as Related to Soil Type and Cropping System in the Atlantic Coastal Plain Region. Part I, (paper) Arthur Matthias Smith, 137–164
content of dispersed materials, 393–394, 397
in forest floor soils, 66
plants as indicators of the availability of, 139
Nitrogen fixation in alkali soils, 287–295
Organic matter—
Changes in Two Soil Zones, as Influenced by Difference in Form, Fineness and Amount of Calcic and Magnesic Materials, (paper) W. H. MacIntire, W. M. Shaw, and Esther M. Crawford, 107–117
Parker, F. W., See Pierre, W. H., and, 13–32
Pierre, W. H., and Parker, F. W., (paper) The Use of Collodion Sacks in Obtaining Clear Soil Extracts for the Determination of the Water-Soluble Constituents, 13–32
Phosphorous—
amount of, in soil extract dialysate, 22, 28–30
availability of, 460
comparison of, assimilation by pot and field samples, 456–459
effect of, fertilizer on nitrification, 145
effect of, on potassium availability, 208–210
in forest floor soils, 67
Potassium—
assimilated by wheat and buckwheat, 211
availability of, 459
comparison of assimilation by pot and field samples, 456–459
effect of—
ammonium sulfate on the availability of, 208–210
mono-calcium phosphate on the availability of, 208–210
sodium nitrate on the availability of, 208–210
removal of, by corn plants, 211–215
Potassium chloride—
effect of, on seed germination, 337–340
Potassium sulfate, effect of, on seed germination, 337–340
Powers, W. L., (paper) A Study of the Colloidal Fraction of Certain Soils Having Restricted Drainage, 487–491
Sandon, H. (Review of his monograph), The Composition and Distribution of the Protozoan Fauna of the Soil, 415–416
Schlubatis, G., See McCool, M. M., Weidemann, A. G., 391–398
Sewage sludge, nitrification of, 145, 151
Shaw, Charles F., (paper) The Normal Moisture Capacity of Soils, 303–317
Shaw, W. M., See MacIntire, W. H., and Crawford, Esther N., 107–117
Silica, gels of, their heat of reaction, 243–250
Skeen, John R., (paper) Effect of Some Electrolytes on Kaolin and the Probable Relation to the Soil, 225–242
Smith, Alfred, (paper) Effect of Local Influences in Modifying the General Atmospheric Conditions, 363–376
Smith, Arthur Matthias, (paper) A Study of the Factors Influencing the Efficiency of Different Forms of Nitrogen as Related to Soil Type and Cropping System in the Atlantic Coastal Plain Region: part I, 137–164
Sodium carbonate—
effect of—
on alkali soil, 274
on ammonification, 280–284
on bacterial numbers, 275–280
on nitrification, 284–287
on nitrogen fixation, 287–295
Sodium chloride—
effect of—
on ammonification, 280–284
on bacterial numbers, 275–280
on leaching alkali soil, 274
on nitrification, 284–287
on nitrogen fixation, 287–295

Sodium nitrate, effect of, on potassium availability, 208–210
Soduim sulfate—
effect of—
on ammonification, 280–284
on bacterial numbers, 275–280
on leaching alkali soil, 274
on nitrification, 284–287
on nitrogen fixation, 287–295
Soil—
air, the CO_2 concentration of, 421–424
contraction values of a mineral, with organic matter, 123
CO_2 at different depths in the, 424
density of forest and prairie, 73–82
density of surface, study of, 73
determination of ferrous iron in, 169
Differences in the Heat of Reaction between Artificial and, Gels of Silica, Alumina and Iron with Hydroxides, (paper) George John Bouyoucos, 243–250
effect of air-drying a, on its reaction, 399–401
effect of electrolytes on kaolin and the relation to the, 225–242
effect of grinding a, on its reaction, 401–402
Effect of Moisture, Temperature and Other Climatic Conditions on R. Leguminosarum in the, (paper) S. C. Vandecaveye, 355–362
effect of, on climate, 363–376
evolution of carbon dioxide in, 417–453
fertility of a, as Related to the Forms of Its Iron and Manganese, (paper) P. H. Brewer and R. H. Carr, 165–173
fertility of, and colloidal behavior of soils, 127–135
heating effects on oven-dry, 123
influence of freezing on dispersion of, particles, 382–384
methods of sampling and analyses of forest floor, 60–61
Minnesota Glacial, Studies: II. The Forest Floor on the Late Wisconsin Drift, (paper) Frederick J. Alway and Paul M. Harmer, 57–71
Minnesota Glacial, Studies: III. Density of the Surface Foot in Forest and Prairie on the Late Wisconsin Drift, (paper) Paul M. Harmer, 73–82
moisture, review of literature on, 303–304
Nutrient Deficiency, The Seedling Plant Method of Determining, (paper) J. W. Ames and R. W. Gerdel, 455–466
On the Existence of Daily Changes in the Bacterial Numbers in American, (paper) H. G. Thornton and R. A. Fisher, 253–259
Potassium Content of Plants as an Indicator of Available Supply in, (paper) J. W. Ames and R. W. Gerdel, 199–222
Studies on Some Obligate Thermophilic Bacteria from, (paper) William A. Feirer, 47–56
The Microflora and the Productivity of Leached and Non-Leached Alkali, (paper) J. E. Greaves, 271–302
The Occurrence of Yeasts in, (paper) R. L. Starkey and A. T. Henrici, 33–45
the, respiration, 417–421, 427–448
The Use of Collodion Sacks in Obtaining Clear, Extracts for the Determination of the Water-Soluble Constituents, (paper) W. H. Pierre and F. W. Parker, 13–32
Soil density, method of determining it, 74–75
Soil fertility and respiration, 443–448
Soil gases, method of determining, 417–420
Soil moisture, the influence of, on nitrification, 141–148
Soil Profiles, Further Studies on Michigan, with Special Reference to Dispersed Materials, (paper) M. M. McCool, A. G. Weidemann and G. Schlubatis, 391–398
Soil Suspensions, Method of Preparation of, and Degree of Dispersion as Measured by the Wiegner-Gessner Apparatus, (paper) Georg Wiegner, 377–390
Soil toxicity, relation of iron and manganese to, 165
Soil Zones, Outgo of Calcium, Magnesium, Nitrates and Sulfates from High-Calcic and High-Magnesic Limes Incorporated in Two, (paper) W. H. MacIntire, 175–197
Soils—
A Study of the Colloidal Fractions of Certain, Having Restricted Drainage, (paper) W. L. Powers, 487–491
Colloidal Behavior of, and Soil Fertility: III. Cation Replacement and Saturation of Soil with Ca, (paper) J. S. Joffe and H. C. McLean, 127–135

Soils—
dispersion of, 379–388, 391
factors affecting the H-ion concentration of, 399–414
heat of reaction of, 244
heat of wetting of, 244
The Hydrometer as a New and Rapid Method for Determining the Colloidal Content of, (paper) George John Bouyoucos, 319–331
The Hydrometer as a New Method for the Mechanical Analysis of, (paper) George John Bouyoucos, 343–353
The Normal Moisture Capacity of, (paper) Charles F. Shaw, 303–317
The Phenomena of Contraction and Expansion of Soils When Wetted with Water, (paper) George John Bouyoucos, 119–126
Soybean plant, influence of boron on the growth of, 83–105
Specific resistance of dialysate from soil extract, 20–22
Spencer, M. L. (Review of his book) Données Numériques de Cristallographie et de Minéralogie, etc., 333
Starkey, R. L., and Henrici, H. T., (paper) The Occurrence of Yeasts in Soils, 33–45
Stremme, Herman (a review of his book) Grundzuge der praktischen Bodenkunde, 493
Subsoil—
effect of surface layer treatment on reaction of, 409–412
Studies on the Removal of Nutrients from, by Alfalfa, (paper) C. E. Millar, 261–269
Sulfates, outgo of, from soils limed with Ca and Mg limes, 187–190
Sulfuric acid treatment of cotton seed, 1–3, 8
Tankage, packing house, for nitrification experiments, 140–160
Temperature—
effect of, on *R. leguminosarum* in, 355–362
effect of soil on, in local areas, 366–376
Thornton, H. G., and Fisher, R. A., (paper) On the Existence of Daily Changes in the Bacterial Numbers in American Soil, 253–259
Urea—
effect of, on seed germination, 337–340
nitrification of, 140–160
Vandecaveye, S. C., (paper) Effect of Moisture, Temperature and Other Climatic Conditions on *R. leguminosarum* in the Soil, 355–362
Waksman, Selman A., (a review of his book) Principles of Soil Microbiology, 493–494
Waksman, Selman A., (a review of a section in Abderhalden's Handbuch der biologischen Arbeits methoden) Methoden der Mikrobiologischen Bodenforschung, 495
Waksman, Selman A., and Davison, Wilburt C., (Review of their book) Enzymes, 81–82
Water, absorption of, by the lower root system, 266
Water extracts of soils, review of methods, 13–14
Water of adhesion in soil, definition of, 315–316
Weidemann, A. G., See McCool, M. M., and Schlubatis, G., 391–398
Wiegner, George, (paper) Method of Preparation of Soil Suspensions and Degree of Dispersion as Measured by the Wiegner-Gessner Apparatus, 377–390
Wiegner, G., and H. Jenny (Review of their book), Anleitung zum quantitativen agrikulturchemischen Praktikum, 415
Wisconsin drift
density of forest and prairie soil on the late, 73–82
the forest floor of the late, 57
Yeasts, occurrence of, in soil, 33–45